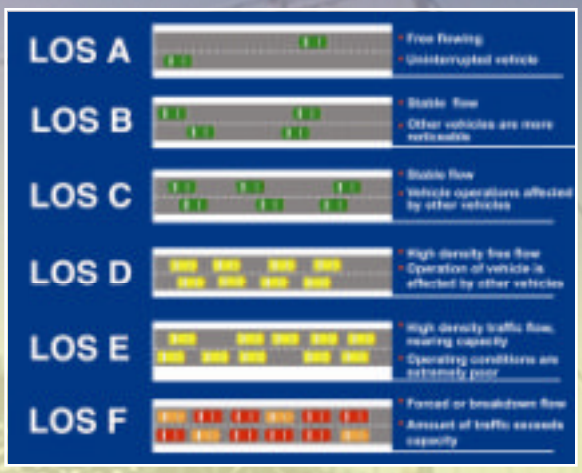
Task Force on Traffic Capacity Across the Chesapeake Bay

Travel Demand and Highway Infrastructure Needs

Level of Service (LOS) is a quantitative measure of traffic operational conditions. Ranges of operation are defined for each type of roadway section (signalized intersections, freeways, ramp junctions and weaving sections) and are related to the amount of traffic demand at a given time as compared to the capacity of that type of roadway section. LOS A represents good operating conditions and LOS F represents unsatisfactory operating conditions.



Factors that affect the need for new capacity:

- Crossing location growth and development / travel demand
- Access controls and operational issues
- Upgrades or new roadways
- Interchange / access locations
- Tie-ins with existing major corridors

If we do nothing to address the needs for capacity:

- Growth in traffic across the bridge will continue
- Congestion on a future weekday will look like a current summer weekend day!
- The current capacity of the bridge is 82,500 ADT
- Forecasted volumes will be 40% higher than that of the existing bridge and approach roadways
- Severe congestion would exist for up to 12 hours per day
- The capacity to accommodate demand will not be available

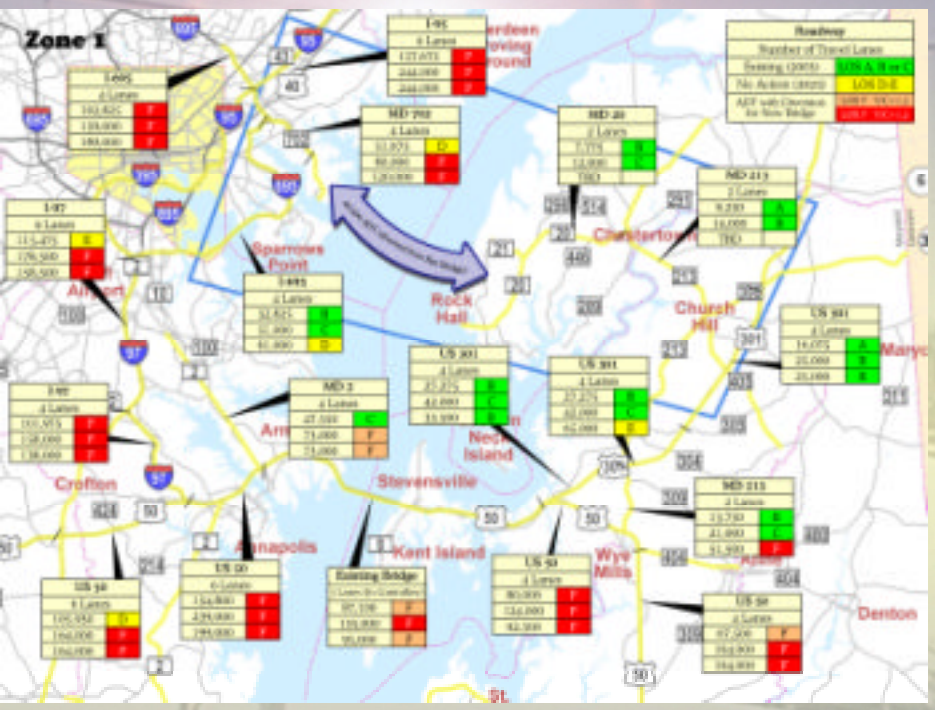
Conditions	2000	2025
Non-Summer Weekday	61,000	86,000
Summer Weekend Day	95,000	135,000

Why is it important to evaluate the travel demand?

- This project is much more than just a big bridge project. Roadways carry the traffic to and from the bridge. Many miles of roadways could be affected by new capacity across the Bay
- Many of these roadways are currently or are expected to be over capacity in the future
- Communities exist on each shore along these roadways that would be impacted. Significant natural resources (forests, wetlands) along the travel corridors would be impacted
- A sketch-level travel demand model was developed for the Needs Report to evaluate the diversion of trips. Although this model is appropriate for order of magnitude comparisons, a more detailed model would be developed for the design of a facility. Changes in traffic volumes from land use changes were not taken into account
- Results show that each Zone can provide some relief, but there would still be issues at the existing bridges and US 50 approach through Annapolis. In some cases the diversion would further exacerbate an already congested condition

Task Force on Traffic Capacity Across the Chesapeake Bay

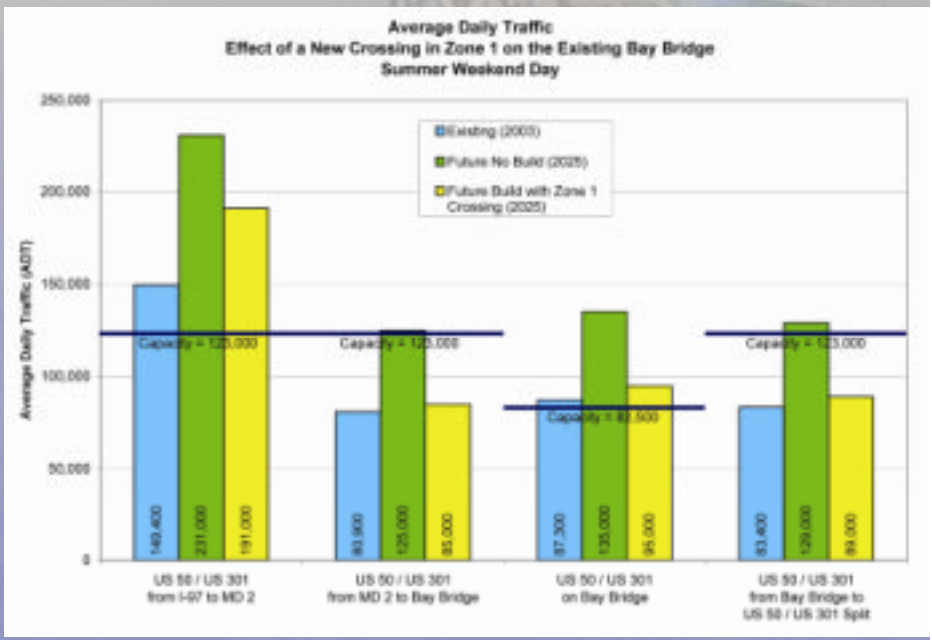
Zone 1 Travel Forecasts



If new capacity were added in Zone 1

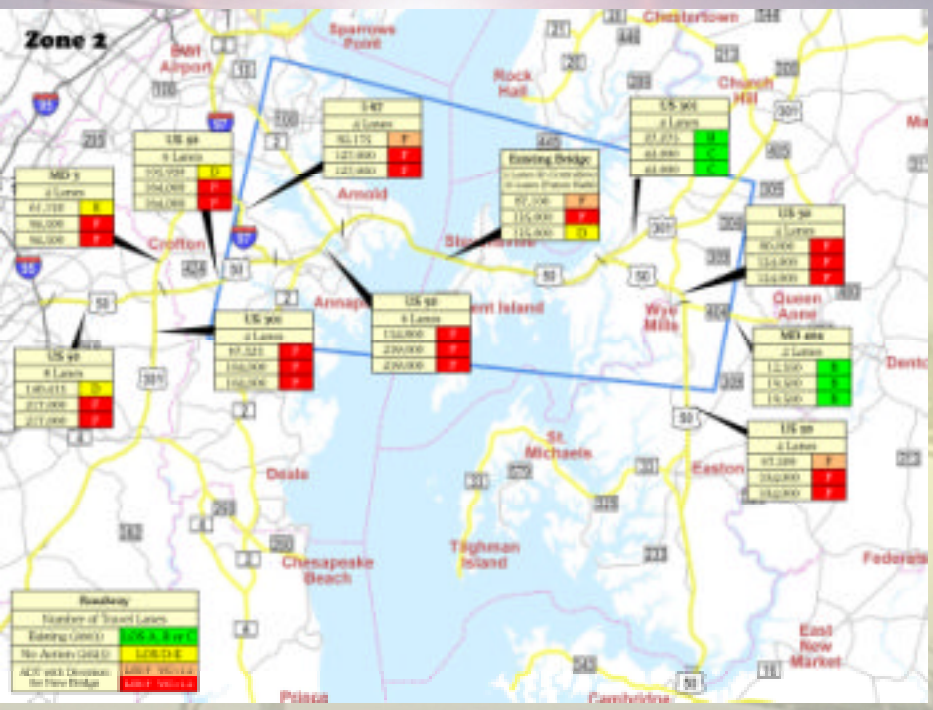
- Major upgrade of MD 702, MD 43, or North Point Road to a freeway
- Upgrades to approaches along I-695 (Baltimore Beltway)
- New or upgraded road(s) from Tolchester to US 301 (approximately 18-20 miles) – major environmental and agricultural impact issues
- Access controls would need to be evaluated along new / upgraded roadways
- Kent County would be as close to Baltimore as Harford or Carroll Counties

- Anticipated trip diversion (summer weekend)
  - 40,000 ADT would divert to a new crossing
  - 95,000 ADT would still use the existing bridge
- Anticipated trip diversion (non-summer weekday)
  - 25,000 ADT would divert to a new crossing
  - 61,000 ADT would still use the existing bridge
- Severe congestion would remain on US 50 in the Annapolis area
- The greatest effect on traffic volumes would likely be from land use changes in Kent County (which are not accounted for in the current forecasts)



Task Force on Traffic Capacity Across the Chesapeake Bay

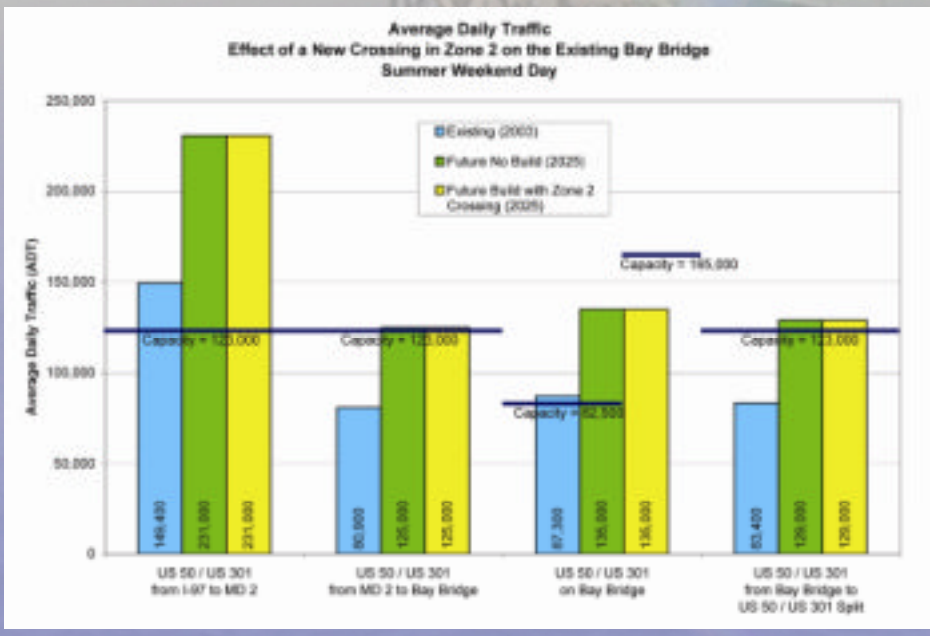
Zone 2 Travel Forecasts



If new capacity were added in Zone 2

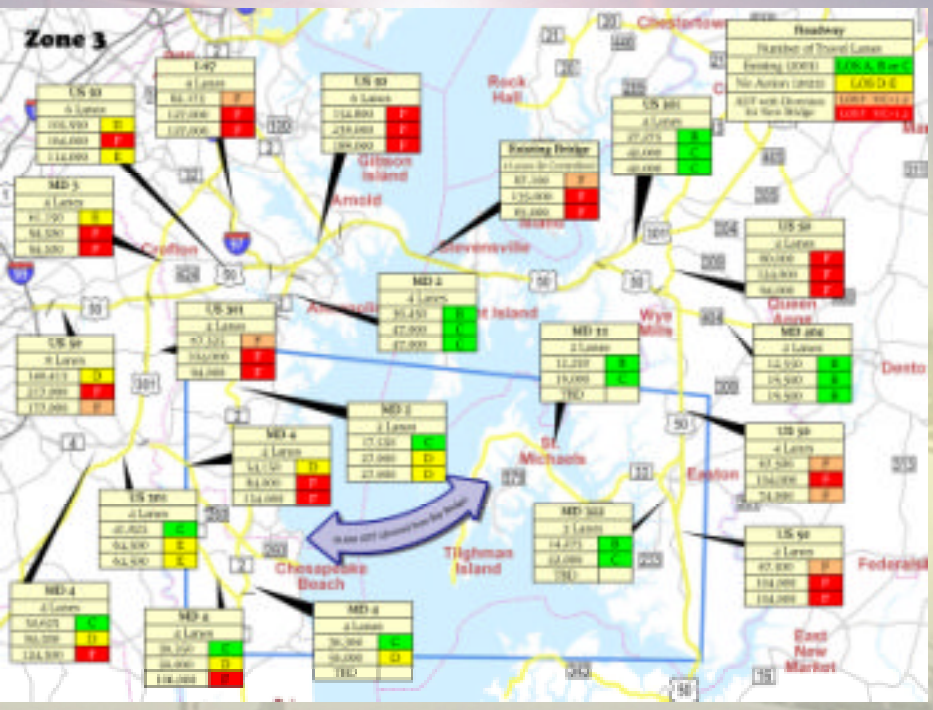
- Given lower per lane capacity on the bridge, need more lanes on the bridge than on the approach roads
- Need to increase capacity of US 50 through Annapolis
- Volumes through Annapolis would be comparable to those of I-495 (Capital Beltway) through Rock Creek Park
- Exacerbate an already growing problem on I-97
- Need to upgrade US 50 from US 301 split to MD 404 ($200 million improvement planned)
- US 50 / 301 from the Bridge to US 301 would reach capacity around 2030

- Anticipated demand (summer weekend): 135,000 ADT
- Anticipated demand (non-summer weekday): 86,000 ADT
- Severe congestion would remain on US 50 in the Annapolis area



Task Force on Traffic Capacity Across the Chesapeake Bay

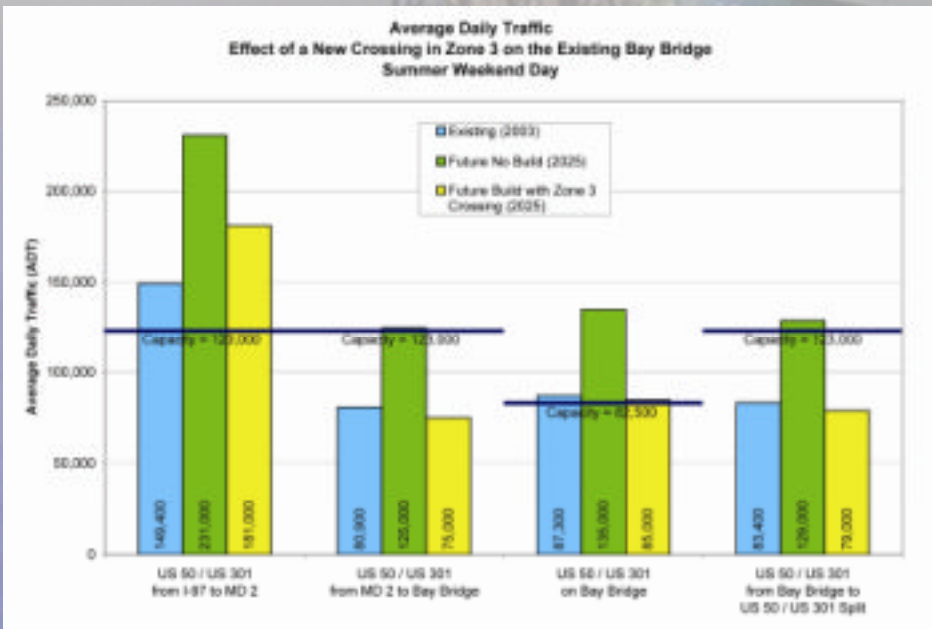
Zone 3 Travel Forecasts



If new capacity were added in Zone 3

- MD 4, which is already congested, would require upgrade to eight lanes from I-495 to MD 260 (14 miles)
- Would require major upgrade to MD 260 or a new roadway (8.5 miles)
- Would need a new limited access freeway from Knapps Narrows, over sensitive areas, to tie into US 50 near Easton (18 miles)
- New roadways would require a significant number of bridges across rivers and wetland systems

- Anticipated trip diversion (summer weekend day)
  - 50,000 ADT would divert to a new crossing
  - 85,000 ADT would still use the existing bridge
- Anticipated trip diversion (non-summer weekday)
  - 25,000 ADT would divert to a new crossing
  - 61,000 ADT would still use the existing bridge
- Severe congestion would remain on US 50 in the Annapolis area



Task Force on Traffic Capacity Across the Chesapeake Bay

Zone 4 Travel Forecasts

If new capacity were added in Zone 4

- MD 4 would need to be upgraded with one to two additional lanes in each direction and greater controls of access from I-495 to Prince Frederick (32 miles)
- Access controlled freeway would be needed around Prince Frederick
- Upgrade MD 16 or new roadway connection for about 20 miles through sensitive environmental areas and small communities
- length of roadway bridges may be greater than the Bay crossing itself because 85% of Dorchester County is covered by wetlands

- Anticipated trip diversion (summer weekend day)
  - 25,000 ADT would divert to a new crossing
  - 110,000 ADT would still use the existing bridge
- Anticipated trip diversion (non-summer weekday)
  - 15,000 ADT would divert to a new crossing
  - 71,000 ADT would still use the existing bridge
- Major capacity problems would remain on existing bridge and on US 50 approaches through Annapolis